

REMARKS/ARGUMENTS

In view of the amendments above and the remarks/arguments below, reconsideration of the present application is respectfully requested.

I. Status of the Claims

Claims 1-3 and 5 have been amended to correct informalities and to place the claims in forms Applicant believes are in condition for allowance. Support for the amendments to claim 1 can be found in the Specification, for example, on page 8, lines 11-22 and in Examples 3 through 7. Support for the amendments to claim 5 can be found in the Specification, for example, on page 12, line 14 to page 13, line 14. No new matter is added by the amendments.

Claims 1-6 are pending.

II. Claim Objections

Claim 3 is objected to because it recites “from-basidiomycetes.” Applicant has made the correction suggested by the Examiner by deleting the hyphen so that the claim now recites “from basidiomycetes.” No new matter is added by the correction. Accordingly, Applicant respectfully requests that the claim objection be withdrawn.

III. Claim Rejections under 35 U.S.C. § 112

Claims 1-6 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant has made either the corrections suggested by the Examiner or, where such suggestions are not provided, corrections responsive to and sufficient to overcome the rejections. No new matter is added by the corrections. Applicant respectfully submits that the claims are now definite to one of

ordinary skill in the art and requests 'that the claim rejections on indefiniteness grounds be withdrawn.

IV. Claim Rejections under 35 U.S.C. § 103(a)

Claims 1-5 are rejected under 35 U.S.C. § 103(a) as unpatentable over Japanese Patent Application Publication No. 56-131394 ("JP '394") in view of the Examiner's statement of the ordinary skill in the art. The Examiner contends that the combination of JP '394 and the Examiner's statement renders the claims obvious. Applicant respectfully traverses the rejections.

The MPEP provides: "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP, § 2143.03, ¶ 1 (quoting *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). Applicant respectfully submits that JP '394 and the Examiner's statement of the ordinary skill in the art, either alone or in combination, do not teach or suggest all the elements recited in claims 1-5.

Claim 1, as amended, recites:

A process for producing a ubiquinone-10-containing solution, which comprises the following steps:

[1] adding a methanol solution to a culture obtained by culturing a microorganism having an ability to produce ubiquinone-10 in a medium, or a processed product of the culture and a partially purified product of ubiquinone-10 selected from the group consisting of ubiquinone-10-containing dried products, freeze dried products and crystallized products, to a final concentration of 50 to 100 v/v% and then retaining the resulting mixture at a temperature selected from the range of 0°C to 30°C;

[2] separating and recovering an insoluble matter from the resulting mixture obtained at the step [1];

[3] adding a methanol solution of a concentration of 85 to 100 v/v% to the insoluble matter obtained in the step [2] and retaining the resulting mixture at a temperature selected from the range of 30°C to 80°C, not including 30°C;

- [4] removing an insoluble matter from the resulting mixture obtained in the step [3]; and
- [5] recovering the ubiquinone-10-containing solution.

On the other hand, JP '394 discloses a method for purifying ubiquinone-10 composed of the following steps, as stated in the CAPLUS English abstract:

- [1] adding 20 ml of a 28% NH_4OH -MeOH (5:95) mixture to 100 ml of a hexane extraction containing ubiquinone-10 and then retaining the resulting mixture at 10°C for 20 min;
- [2] discarding the NH_4OH -MeOH layer;
- [3] further extracting impurities remaining in the resulting hexane layer with 20 ml of a 95% MeOH at 10°C for 20 min;
- [4] discarding the MeOH layer; and
- [5] recovering purified ubiquinone-10 from the resulting hexane layer.

A step-by-step comparison between claim 1 and the disclosure of JP '394 shows that JP '394 does not teach or suggest all the elements recited in claim 1.

In step [1] of JP '394, a methanol solution is added to a hexane extraction to a final concentration of about 4.4 v/v% (that is, $28\% \times 0.95 \times 20/120$) at 10°C. In contrast, in step [1] of claim 1, a methanol solution is added to a culture obtained by culturing a microorganism having an ability to produce ubiquinone-10 in a medium, or a processed product of the culture and a partially purified product of ubiquinone-10 selected from the group consisting of ubiquinone-10-containing dried products, freeze dried products and crystallized products, to a final concentration of 50 to 100 v/v% at a temperature selected from the range of 0°C to 30°C. JP '394 does not teach or suggest the "50 to 100 v/v%" element recited in claim 1.

In step [2] of JP '394, a methanol layer is discarded from a solution composed of the methanol layer and a hexane layer to obtain a hexane layer containing ubiquinone-10. In contrast,

in step [2] of claim 1, a methanol solution is discarded from a solution mixture to obtain an insoluble matter containing ubiquinone-10. JP '394 does not teach or suggest "an insoluble matter containing ubiquinone-10" recited in claim 1.

In step [3] of JP '394, impurities remaining in a resulting hexane layer (about 100 ml) are extracted with 20 ml of a 95% MeOH (the final MeOH concentration coming out to be about 15.8%) at 10°C. In contrast, in step [3] of claim 1, ubiquinone-10 in the resulting insoluble matter is extracted by adding a methanol solution to said resulting insoluble matter to a final concentration of 85 to 100 v/v% at a temperature selected from the range of 30°C to 80°C, not including 30°C. JP '394 does not teach or suggest the element of extracting ubiquinone-10 from an insoluble matter or the temperature element recited in claim 1.

In steps [4] and [5] of JP '394, a purified ubiquinone-10 is recovered in a resulting hexane solution. In contrast, in steps [4] and [5] of claim 1, a purified ubiquinone-10 is recovered in a resulting methanol solution. JP '394 does not teach or suggest the element of recovering purified ubiquinone-10 from a methanol solution recited in claim 1.

In fact, what JP '394 discloses is a method for purifying ubiquinone-10 as a hexane solution by removing impurities from a hexane extraction containing unpurified ubiquinone-10 with a methanol solution in which the methanol concentration is low at low temperature, wherein the hexane extraction is obtained by extracting a fermentation product of a microorganism with hexane. Thus, the differences between the process disclosed by JP '394 and the process recited in claim 1 do not merely reside in the volume concentration and the temperature of the methanol solution used but involve such essential steps as precipitating an insoluble matter as opposed to extracting with hexane.

Applicant respectfully submits that the Examiner's statement of the ordinary skill in the art also does not teach or suggest the elements of claim 1 that JP '394 fails to teach or suggest.

Thus, JP '394 and the Examiner's statement of the ordinary skill in the art, either alone or in combination, do not teach or suggest all the elements recited in claim 1. At least for this reason, the combination of JP '394 and the Examiner's statement does not render the claim obvious. Applicant respectfully requests that the rejection of claim 1 on this ground be withdrawn.

Claims 2-5 depend from independent claim 1. The MPEP provides: "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious." MPEP, § 2143.03, ¶ 1 (quoting *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). Therefore, at least for the same reason as stated above in relation to claim 1, the combination of JP '394 and the Examiner's statement of the ordinary skill in the art does not render claims 2-5 obvious. Applicant respectfully requests that the rejections of claims 2-5 on this ground be withdrawn.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

The Examiner is respectfully requested to contact the undersigned at the telephone number indicated below if the Examiner believes any issue can be resolved through either a Supplemental Response or an Examiner's Amendment.

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Respectfully submitted,

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